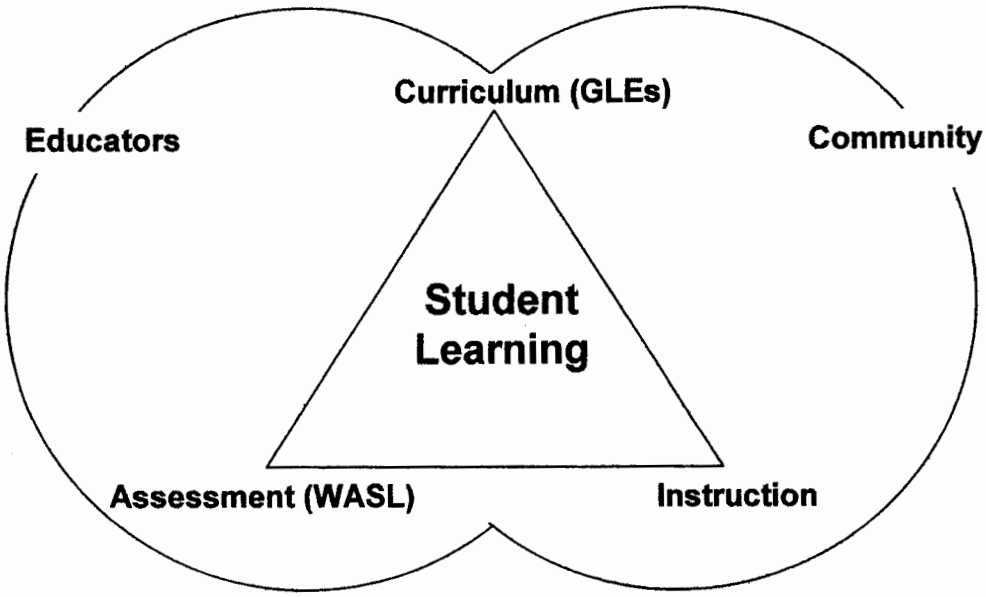
Increasing passing rates on the 10th grade Math WASL



Current Situation	Desirable change
Curriculum:	
1. GLEs are the "right" content for mathematics for an informed citizenry. Are all GLEs equally important?	1. Narrow focus of GLEs - all are important but determine which should be emphasized
2. Teachers mistake the cognitive demand of the GLEs.	2. Create MANY examples of problems reflecting correct cognitive demand.
3. Lack of coherency from one grade level to the next about scaffolding of GLEs.	3. Provide a system for vertical teaming in districts and ESDs.
4. Text materials NOT aligned to GLEs. The classroom curriculum is still aligned to equation based algebra.	4. Provide choices of text materials that align to GLEs and promote student centered learning.
Assessment:	
5. Confusion around how WASL is scored, what evidence is necessary to show adequate progress by students.	5. Clarity on the website about scoring plus at least two released tests.
6. Perception by teachers that there are those "in the know" and those who are excluded from information sources.	6. Create a better system for distribution of information among teachers, administrators, districts.
7. No response from schools when students show lack of success at lower grade levels.	7. Design immediate intervention practices when students start to fall behind.

Instruction:

8. Instruction is largely focused on mathematical procedures and rules. Students have no confidence that they can solve problems unless they can remember the appropriate rule.	8. Provide widespread professional development on how to construct a problem centered classroom that focuses on student sense making, appropriate use of mathematical procedures and rules in contextual problems. Provide incentive for attending those workshops.
9. Teachers creating an environment of "learned helplessness", narrowing scope of problems by constructing solution paths of short structured questions.	9. Provide publications and/or professional development on questioning strategies that elicit deeper thinking.
10. Teacher preparation time is focused on lone teachers making curricular decisions. Some schools have collaborative time but it is often spent on school wide initiatives (such as literacy, school climate, etc.)	10. Teachers should have the opportunity to and be encouraged to work in professional learning communities that are strictly focused on the preparation of excellent lessons.
11. Supervision of teachers is limited. Many administrators do not have a clear vision of what mathematics classrooms should look and sound like in Washington in 2006.	11. Provide in depth training for administrators around mathematics initiatives and excellent instruction in mathematics. Create videos of excellent teaching or model classrooms so that they have a clear vision of what to look for in a mathematics classroom.
12. Interventions for struggling students depend on school decisions (and often individual instructors) without any evidence that the supports are effective.	12. Create examples of successful interventions and support for struggling students including recommendations for curricular support materials.

Educators:

- Teachers are working harder than ever and feeling tremendous pressure that they are not doing the job "correctly". They need to see examples of successful practices so they can have a clear vision and a target to shoot for.
- Teachers need to be included in larger numbers in decision and policy making. They need to have ready access to multiple resources, sample tests.
- Alternative methods for showing adequate progress toward the GLEs are cumbersome for teachers and schools and require a tremendous amount of paperwork, yet there is no provision for how that paperwork should be accomplished. There is no clear explanation for a portfolio and confusion over other methods.
- For the first time, <u>all</u> students are expected to learn significant mathematics. Math teachers have never had such diversity of thought, ability and approach among students. Provide professional development for differentiated instruction in mathematics.

Community:

- We need to do a <u>much</u> better job of informing the public about the GLEs. Positive PR and positive celebrations of success are necessary for parents and other community members to support the efforts of education in Washington.
- Post-secondary institutions in Washington need to have more information about what students know and can do and need to transform their teacher preparation program in mathematics.

State Board of Education Meeting

July 28, 2006

Why did only approximately one-half of the 10th graders meet the mathematics standard?

- Teachers lack understanding of state standards, mathematics, how students learn mathematics, and how to diagnose and intervene with all students.
- Mathematics instruction, assessment, and resources are not aligned to state standards at the classroom/building/district levels.
- Some higher education mathematics courses for pre-service and in-service teachers are not connected to state standards.
- Classroom time allocated for mathematics instruction is insufficient.
- Some districts and/or schools still rely on WASL Wednesday or only spend a week to cram for the WASL.
- There is little to no time for teachers to collaboratively plan quality lessons and to examine student work.
  Time is not spent on differentiated instruction.
- Students have great WASL test anxiety because adults have hyped the test and treat it as a special event rather than a "dip stick" of continuous quality teaching and learning.
- Students lack daily engagement with EALRs 2–5.
- Students lack conceptual understanding of mathematics and therefore rely on memorization or algorithmic skills.
- Students lack appropriate diagnosis and targeted intervention opportunities which lead to detrimental tracking at all levels.
- Students with greatest needs are often instructed by least qualified teachers or assistants.

What short and longer-term actions need to be taken to increase mathematics achievement?

Goal: Increase student performance on the Washington Assessment of Student Learning (WASL) in mathematics by developing a unified, standards-based curriculum infused with cognitively complex problems.

Professional Development

- Involve educators in courses that allow Essential Academic Learning Requirements (EALRs) and Grade Level Expectations (GLEs) to come alive in classrooms.
- Increase mathematics capacity for teaching mathematics—mathematics improvement will begin and end in the classroom.
- Increase teacher skills and knowledge in how to do daily diagnosis and intervention with all students based on how students learn mathematics.
- Train teachers to develop and/or adapt cognitively complex problems to use with appropriate lessons or units.

Time on task

- Elementary School – Students will spend a minimum of 75 minutes per day for 180 days of the school year.
- Middle School – Students will spend one class per day at grade level in mathematics. Students who do not meet standard on the WASL will take an additional daily mathematics intervention class until the student meets standard two years in a row.
- High School - Students will spend one class per day at grade level in mathematics. Students who do not meet standard on the 7th or 8th grade WASL will take an additional daily mathematics intervention class until the student meets standard on the WASL.

Quality Mathematics Instruction

- High School Credit for two years of mathematics must be equivalent to Integrated Mathematics I and Integrated Mathematics II.

Measures Taken by Spokane Public Schools
In the Past Two Years for Improvement in Mathematics

- Adoption of texts in middle school and high school of materials more closely aligned to GLEs and problem- and student-centered instruction. (*CMP* in middle school *and Contemporary Mathematics in Context* in high school)
- Intensive training for teachers at these levels.
- Curriculum Guides aligning GLEs to text resources
- Program Guides (under construction) to support daily curricular decisions
- Math Coaches in all middle schools and all but one high school
- District written and administered assessments (aligned to GLEs and WASL type format) with samples collected (quarterly in high school and by unit in middle school)
- Professional development for administrators around math education
- Central hiring (as opposed to individual schools)
- Regular walkthroughs with all level principals and district math coordinator as well as other central administrators (This has been implemented in middle schools for two years and will begin in the fall for high schools)
- Participation in the Urban Math Network